

|            |  |                 |                 |              |
|------------|--|-----------------|-----------------|--------------|
| cons.aa    | <u>  G  C  </u>  | <u>  G  V  </u> | <u>  A  K  </u> | <u>  E  </u> |
| htGFBR-II  | LDTLVGKGRFAEVYKAJLKQNTSEQFETVAVKIFPYDHYASWKDRKDIFSDINLGHENILQF |                 |                 |              |
| mActR-IIB  | LLEIKARGRFGCVWKAQLMN-----DFVAVKIKPLQDKQSWQSEREIFSTPGMTHENLLQF  |                 |                 |              |
| mActR-II   | LLEVKARGRFGCVWKAQLLN-----EYVAVKIFPIQDKQSWQNEYEVYSIPGMTHENILQF  |                 |                 |              |
| daf-1      | LTVRVGSGRFGNVSRGDYRG-----EAVAVKVFNAIDEPAPFKEIEIFETRMLRHPNVLRY  |                 |                 |              |
| subdomains | I  |                 | II              | III IV       |

|            |   |      |
|------------|---|------|
| htGFBR-II  | LTAERKTELCKQYWLITAFHAKGNLQEYLTRHVISWEDLRNVGSSLARGLSHLHSDHTP-C |      |
| mActR-IIB  | IAAEKRGSNLEVELWLITAFHDKGSLIDYLGNIITWNELCVAVTMSRGISYLVHEDVPWCR |      |
| mActR-II   | IGAERKGTSDVDLWLITAFHEKGSLSDFLKVNVVSWNELCVAVTMSRGISYLVHEDVPWCR |      |
| daf-1      | IGSDRVDTGFTVTELWLVIYHPSGSLHDFLENTVNIETYYNLMRSTASGLAFLHNQIGGSK |      |
| subdomains | V   | VI-A |

|            |   |                |
|------------|---|----------------|
| cons.aa    | <u>  DLK  N  </u>   | <u>  DFG  </u> |
| htGFBR-II  | -GRPKPIVHRDLKSSNILLVKNDLTCCLCDPGLSLRL---GPYSSVDDLANSQOVGTARYMAP   |                |
| mActR-IIB  | GEGHKPSIAHRDFKSKNVLLKSDLTAVLADPGLAVRF---EPGKPPGD---THGQVGTTRYMAP  |                |
| mActR-II   | -DGHKPAISHRDIKSKNVLLKQNLTAADIADPGLALKF---EAGKSAGD---THGQVGTTRYMAP |                |
| daf-1      | -ESNKPANAHARDIKSKNTMYQNDLTCAIGDLGLSLSKPEDAASDIAN---ENYKCGTVRYLAP  |                |
| subdomains | VI-B  | VII VIII       |

Fig. 1

2/11

a.a            C C E G N M C  
5' GCGGATCCTGTTGTGAAGGNAATATGTG 3' Fig. 2A  
BAMHI C C G C

a.a            V A V K I F  
5' GCGGATCCGTCGCAGTCAAAATTTT 3' Fig. 2B  
BamHI G C G G C  
T T T A

a.a            R D I K S K N  
5' GCGGATCCGCGATATTAAAAGCAA 3' Fig. 2C  
BAMHI A C C GTCT  
G A

a.a            E P A M Y  
5' CGGAATTCTGGTGCCATATA Fig. 2D  
EcoRI G G G  
A A

SECRET 2/15/00

M C A A A K L A F A V F L I S C S S G A I L G R A C I R - I I  
M T A P W A A L A L L W C S C A C S C R G E A C I R - I I B  
M C R C L L R C L W P L M I V L W I R I A S T I P M V Q K S V M N D M I V T D M N C A V T E R - I I  
M E A A V A A P R K G L L M L L V L A A A T E R - I / A L K - S  
M T L G C S P R K G L L M L I A L P S P A L K - I  
M V D C V M I L P V L I M I A L P S P A L K - 2  
M T Q L Y I Y I R L L C A Y L F I I S R V Q C Q M L D S M L M G T G M K S D S O Q K K S E A L K - 3  
M A E S A G A S S F F P L V V L L L A L K - 4  
M L L R S S G K L M V G T M K E A L K - 6

[illegible][illegible]

**Fig. 3**

[illegible][illegible]

**Fig. 3 contd.**

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |       |        |             |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|---|---|---|---|-------|--------|-------------|
| F | G | C | V | W | K | A | Q | L | M | - | - | - | E | Y | V | A | V | K | I | F | P | I | Q | D | K | Q | S | W | Q | N | E | Y | E | V | [Y] | S | L | P | G | M     | ACR-11 |             |
| F | G | C | V | W | K | A | Q | L | M | - | - | - | - | D | F | V | A | V | K | I | F | P | L | Q | D | K | Q | S | W | Q | N | E | R | E | I   | F | S | T | P | G     | M      | ACR-11B     |
| F | A | E | V | Y | K | A | K | L | K | Q | N | T | S | E | Q | F | E | T | V | A | V | K | I | F | P | Y | E | S | W | K | T | E | K | O | I   | F | S | D | I | N     | L      | ISR-11      |
| F | G | E | V | W | H | G | K | W | H | G | E | - | - | - | - | - | V | A | V | K | I | F | S | S | R | E | E | S | W | F | R | E | A | E | I   | Y | Q | T | V | M     | L      | ISR-1/ALK-S |
| F | G | E | V | W | R | G | L | W | Q | G | E | S | - | - | - | - | V | A | V | K | I | F | S | S | R | D | E | Q | S | W | F | R | E | T | E   | I | Y | M | L | L     | ALK-1  |             |
| F | Y | G | E | V | W | R | G | L | W | Q | G | E | S | - | - | - | V | A | V | K | I | F | S | S | R | D | E | K | S | W | F | R | E | T | E   | I | Y | M | L | ALK-2 |        |             |
| F | Y | G | E | V | W | H | G | K | W | R | G | E | K | - | - | - | V | A | V | K | I | F | S | S | R | E | E | A | S | W | F | R | E | T | E   | I | Y | Q | T | V     | M      | ALK-3       |
| F | G | E | V | W | R | G | R | W | R | G | G | D | - | - | - | - | V | A | V | K | I | F | S | S | R | E | E | A | S | W | F | R | E | T | E   | I | Y | Q | T | V     | M      | ALK-4       |
| F | G | E | V | W | M | G | K | W | R | G | E | K | - | - | - | - | V | A | V | K | I | F | S | S | R | E | E | A | S | W | F | R | E | T | E   | I | Y | Q | T | V     | L      | ALK-6       |

[illegible]

|  |  |  |  |
|--|--|--|--|
| IV   | V  | VIA  | VIB  |
| <p>           ACCR-II<br/>           ACCR-IIB<br/>           TBR-II<br/>           TBR-I/ALK-5<br/>           ALK-1<br/>           ALK-2<br/>           ALK-3<br/>           ALK-4<br/>           ALK-6         </p> | <p>           ACCR-II<br/>           ACCR-IIB<br/>           TBR-II<br/>           TBR-I/ALK-5<br/>           ALK-1<br/>           ALK-2<br/>           ALK-3<br/>           ALK-4<br/>           ALK-6         </p> | <p>           ACCR-II<br/>           ACCR-IIB<br/>           TBR-II<br/>           TBR-I/ALK-5<br/>           ALK-1<br/>           ALK-2<br/>           ALK-3<br/>           ALK-4<br/>           ALK-6         </p> | <p>           ACCR-II<br/>           ACCR-IIB<br/>           TBR-II<br/>           TBR-I/ALK-5<br/>           ALK-1<br/>           ALK-2<br/>           ALK-3<br/>           ALK-4<br/>           ALK-6         </p> |

VIB

**Fig. 3 contd.**

SECRET

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W | N | L | T | A | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |   |   |
| X | X | S | D | L | T | A | V | L | A | D | F | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | S | D | L | T | A | V | L | A | D | F | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | S | D | L | T | C | C | L | C | D | F | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I | O | T | I | D | I | A | P | M | R | Y | M | A | P | E | V | L | E | G | A | C | T | R | - | I | I |
| X | X | K | N | G | T | C | C | I | A | D | L | G | L | A | V | R | H | D | S | A | G | I |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

vii

viii

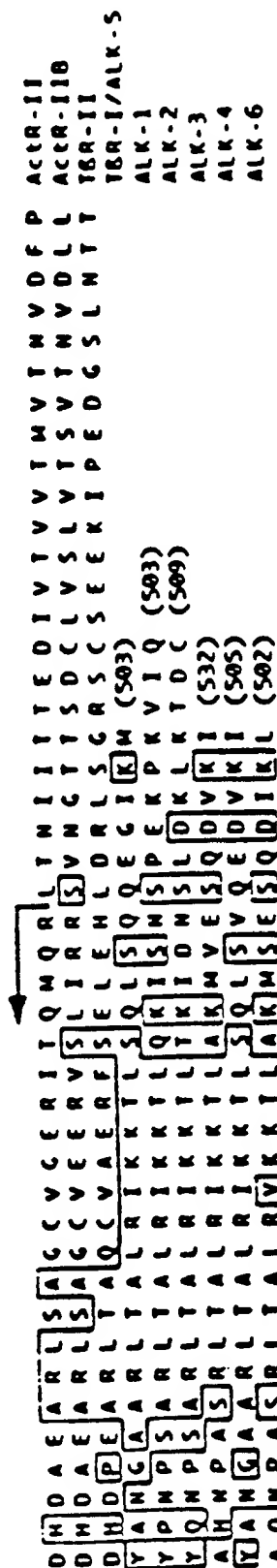
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |             |        |          |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------------|--------|----------|
| A | I | M | F | Q | R | - | D | A | F | L | R | I | D | M | Y | A | M | G | L | V | L | W | E | L | A | S | R | C | T | A | A | D | G | P | V | D | E | Y | M | L | P | F | E           | E      | ACCR-11  |
| A | I | M | F | Q | R | - | D | A | F | L | R | I | D | M | Y | A | M | G | L | V | L | W | E | L | A | S | R | C | T | A | A | D | G | P | V | D | E | Y | M | L | P | F | E           | E      | ACCR-118 |
| R | M | N | L | E | N | A | E | S | F | K | Q | I | D | Y | S | M | A | L | V | L | W | E | M | T | S | R | C | M | A | V | - | G | E | Y | K | D | Y | E | P | P | F | E | S           | TBR-11 |          |
| S | I | N | M | K | H | F | E | S | F | K | R | A | D | I | Y | A | M | G | L | V | F | W | E | I | A | R | R | C | S | I | - | G | I | H | E | D | Y | Q | L | P | Y | D | TBR-1/ALK-5 |        |          |
| Q | I | R | T | D | C | F | E | S | Y | K | W | T | D | I | M | A | F | G | L | V | L | W | E | I | A | R | R | T | I | V | - | M | G | I | V | E | D | Y | R | P | P | F | Y           | D      | ALK-1    |
| T | I | Q | V | D | C | F | D | S | Y | K | R | V | D | I | M | A | F | G | L | V | L | W | E | V | A | R | R | M | V | S | - | M | G | I | V | E | D | Y | K | P | P | F | Y           | D      | ALK-2    |
| S | L | M | K | N | H | F | Q | P | Y | I | M | A | D | I | Y | S | E | G | L | I | I | W | E | M | A | R | R | C | I | T | - | G | G | I | V | E | E | Y | Q | L | P | Y | N           | ALK-3  |          |
| T | I | N | M | K | H | F | D | S | F | K | C | A | D | I | Y | A | L | G | L | V | Y | W | E | I | A | R | R | C | N | S | - | G | G | V | H | E | E | Y | Q | L | P | Y | D           | ALK-4  |          |
| S | L | N | R | N | H | F | Q | S | Y | I | M | A | D | M | Y | S | E | G | L | I | I | W | E | I | A | R | R | C | V | S | - | G | G | L | Y | E | E | Y | Q | L | P | Y | D           | ALK-6  |          |

X

**X**

[illegible]

**Fig. 3 contd.**



XI

PRESSL (513) ACTR-II  
PRESSI (536) ACTR-II  
K (567) TGR-II

Fig. 3 contd.

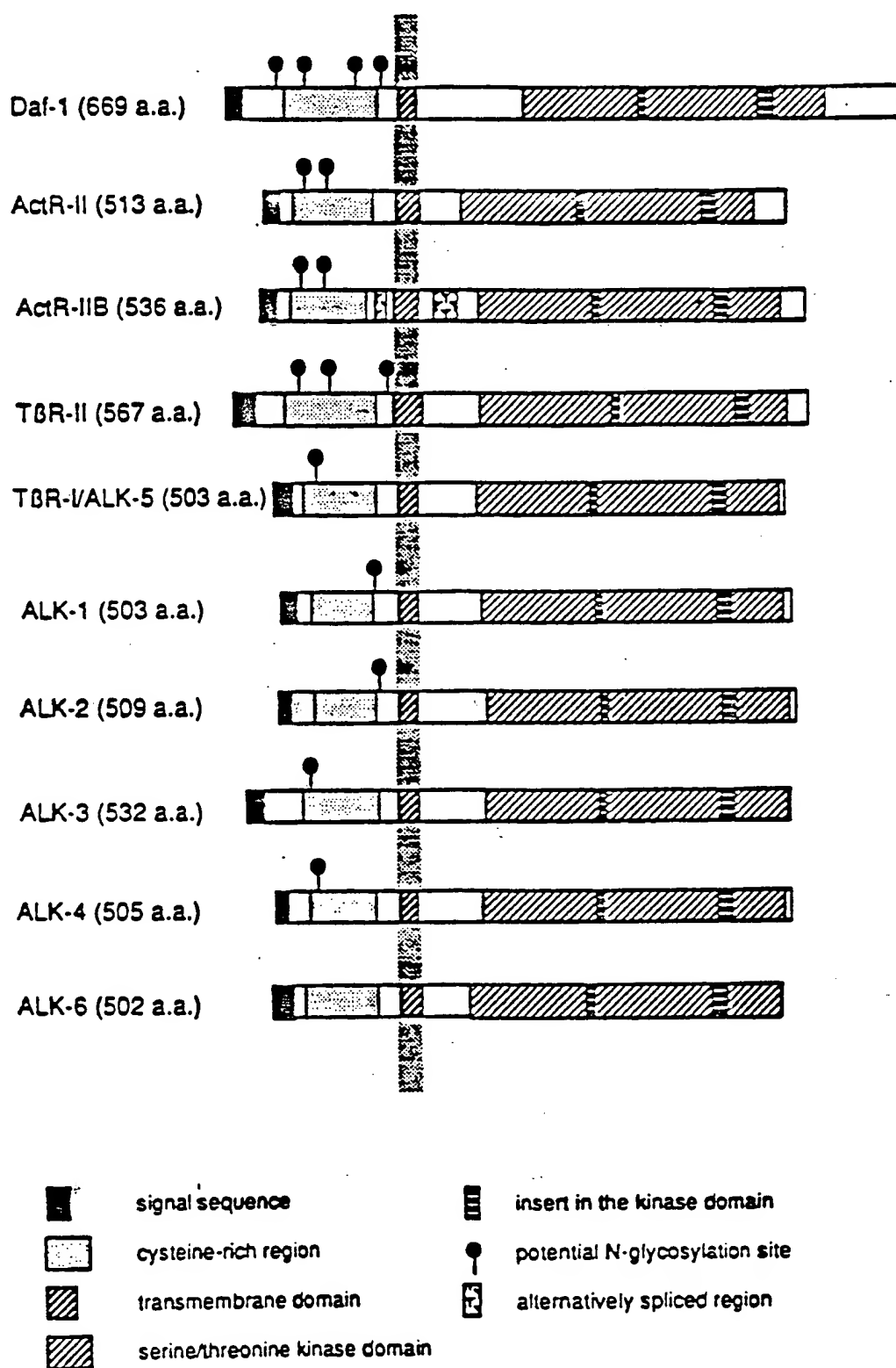


Fig. 4





10/11

| ALK-2 | ALK-3 | ALK-4 | ALK-5 | ActR-II | ActR-IIB | TBR-II | daf-1 |          |
|-------|-------|-------|-------|---------|----------|--------|-------|----------|
| 79    | 60    | 61    | 63    | 40      | 40       | 37     | 39    | ALK-1    |
|       | 63    | 64    | 65    | 41      | 39       | 37     | 39    | ALK-2    |
|       |       | 63    | 65    | 41      | 38       | 37     | 39    | ALK-3    |
|       |       |       | 90    | 41      | 40       | 39     | 42    | ALK-4    |
|       |       |       |       | 42      | 40       | 41     | 43    | ALK-5    |
|       |       |       |       |         | 78       | 48     | 35    | ActR-II  |
|       |       |       |       |         |          | 47     | 32    | ActR-IIB |
|       |       |       |       |         |          |        | 34    | TBR-II   |

Fig. 6

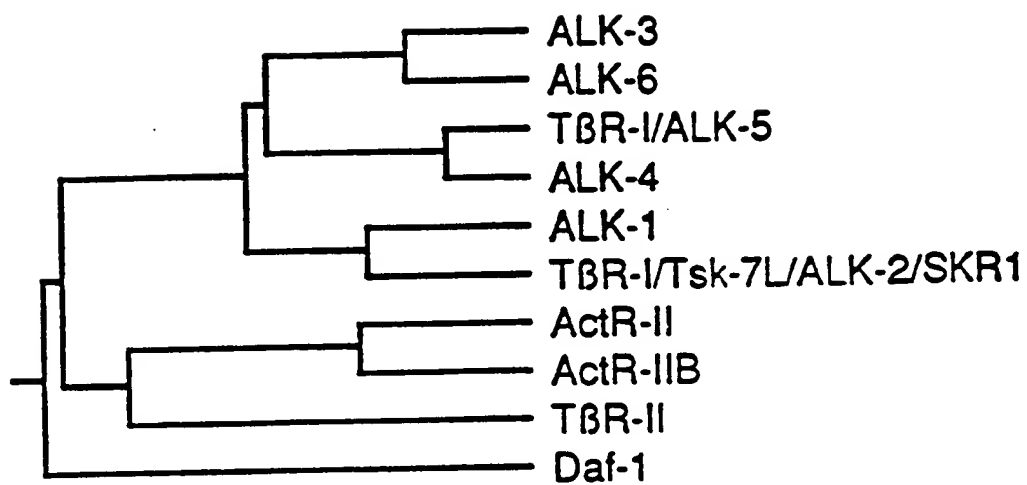


Fig. 7